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INFORMATION REPORT INFORMATION REPORT

CENTRAL INTELLIGENCE AGENCY

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COUNTRY	USSR (Krasnoyarsk Kray)	REPORT	
SUBJECT	1. The Copper Plant in Norilsk 2. The Large Smelting Shop in Norilsk	DATE DISTR.	24 April 1958
	(Copper plant: production, description, processing, manpower. Nickel(?) plant: description)	NO. PAGES	1
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DATE OF INFO.			25X1
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MAY 1958

Reports on the copper plant (mednyy zavod) (attachment 1) and the large smelting plant (bolshoy plavilnyy tsekh) in Norilsk (attachment 2) 25X1

The six-page report on the copper plant gives the location and description of the plant, its plant production, copper processing and equipment, labor force, and certain personalities in Norilsk. 25X1

The six-page report on the large smelting shop includes a numbered plan of the shop area and the shop itself, with a detailed index, plus personalities in the shop. The index states that nickel, copper, and cobalt ores are processed in this shop. Included is a numbered plan and brief index of the copper plant. 25X1 25X1

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STATE	ARMY	NAVY	AIR	FBI	AEC				
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(Note: Washington distribution indicated by "X"; Field distribution by "#".)

INFORMATION REPORT INFORMATION REPORT

[redacted] Attachment 1 25X1

Country: USSR
"Mednly Zavod" in Noril'sk

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Location and Description of the "Mednly Zavod" in Noril'sk

1. The "Mednly Zavod" (Copper Plant) is located on the southeastern side of Noril'sk about three or four kilometers from the center of the city and approximately two kilometers from the Fourth Gornly Lager.[1] The plant was subordinate to the Administration of Metallurgical Plants (Upravlenie Metallurgicheskikh Zavodakh) until 1953 when it began operation as an independent plant.

2. A river flows at a distance of two and one half to three kilometers south of the "Mednly Zavod" into the Lama Lake. The lake district, which is located along the railroad leading to Dudinka, is situated at approximately one to one and one half kilometers east of the plant. Although Noril'sk is an industrial center, its only rail connection with Dudinka is by means of this one wide-gauge railroad line. The Nadeshdi Airfield is approximately eight kilometers from Noril'sk, and flights are available from this field to Dudinka.

3. A plant called the "26.Zavod" was built in 1953 at a distance of 150-200 meters east or southeast of the "Mednly Zavod". It is believed that in this plant gold and precious metals can be extracted from the dross of the copper ore. However, in 1954 the dross was still being sent by aircraft to Moscow for processing.[2]

4. The electrolytic section of the "Mednly Zavod" is situated in a square-shaped building with a pitch-coated roof made of wood. There are windows on the sides of the building. One part of the building is three storied, the other is two storied. The building housing the copper concentrate ressembles the electrolytic section

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but has a concrete roof. The building housing the anodes, the converter, the smelting furnace, the mills and other sections has a flat concrete roof and side windows. The part of this building which houses the management offices is three-storied, while the remainder of the building is one story high. The warehouse and the garages are long round-roofed buildings.

5. Between the warehouse and the electrolytic section is an underground tunnel, approximately 100-150 meters long and four to five meters in width and height, containing two narrow gauge railroad tracks. Electric machines transport the copper products to this warehouse. The tunnel runs as far as the anode section, and the anodes which are to be used in the electrolytic process are transported through this tunnel to the electrolytic section.

6. The thickness of the walls of the various plant buildings is approximately that of one length of a brick, but the walls are constructed according to the double-brick building regulations, i.e. one brick is placed length-wise and two are placed on it width-wise. The thickness of the concrete roofs is about 10 centimeters.

Plant Production and Safety Precautions

7. The pure copper produced in the plant is in the form of plates approximately 70 x 80 centimeters in area and one and one half to two centimeters in thickness. These plates are about 70-80 kilograms (sic) in weight. A minimum of 17 and a maximum of 27 tons of pure copper are obtained from each electrolysis block per week, which amounts to a total of 700 to 1000 tons of copper per week for the entire factory.[3] The rate of production is uniform throughout the year.

8. The copper plates obtained in the plant are checked and tested, and the defective ones are separated. The others, after being stamped with the marks showing the shift that produced them, are sent to the copper plates warehouse. The defective ones are sent to the anode producing section where they are melted and converted into anodes.

9. Of the 48 electrolysis blocks in the plant, three of them are used in the preparation of the necessary pure copper cathodes. Three others are not usually working.

10. The marked plates are taken from the warehouse and sent to Dudinka by train. For three or four months in the summer, they are transported from Dudinka by boat to Krasnoyarsk, where there is a factory producing wires and cables.

11. Neither civil-defense nor fire or air-raid drills are practiced in the plant. Workers are given instructions only on how to guard against accidents in their daily work.

Copper Processing and Equipment

12. It is believed that the copper ore is obtained from mines at Ror mountain which contains a considerable amount of metallic ore deposits.

13. The copper ore is transformed into concentrate at the "Rov" Factory in Noril'sk. This greenish mud-like substance resembles cement in color and forms the raw material of the "Mednyy Zavod." The concentrate is brought to the "Mednyy Zavod" in trucks and is unloaded close to the left of the entrance. From here it is sent to the smelting furnace (plavnoy pech) on a conveyor belt. The furnace is of the converter type. The concentrate is poured into the converter along with coke, wood, and a stone-like substance called "pishaynik" and is then inflamed. The copper, still in an impure state, is then taken from a channel under the converter and sent to the converter section (konvertirnoye otdeleniye) which contains two converters. The impure copper is remelted in the converters and compressed air is forced through it to produce black copper. This copper is then subjected to a purification process in the anode shop (anodnyy tsekh) in order to prepare the necessary copper anodes for the electrolytic processing. Pure copper rods are used as cathodes and acidified copper sulphate ($CuSO_4$) solution is used as the electrolyte.

14. The electrolytic process is carried out in the electrolysis shop (elektrolisnyy tsekh). The shop contains 48 blocks including 10 tubs each. Each tub contains 52 electrolysis cells making a total of 24,960 electrolysis cells in the 48 blocks. Each tub is approximately one meter wide and five meters long and is made of cement. Approximately 9000 volts of electrical current is transmitted to this system, each cell receiving 0.3 volts.[4] The electrolytic agent is circulated continuously by pumps. The circulation is limited to 18 litres a minute. The temperature of the electrolytic agent is kept normally at 50° centigrade and at least to 45° centigrade. The temperature of the agent is measured by vapor. In addition to this, 100 grams of glue and a small amount of the powder of a root called "soapwort" are put in each tub. The anodes are renovated once a month, and the cathodes are replaced by new or full cathodes each week. The electrolytic process is stopped completely when the anodes are changed, and the tubs are cleaned thoroughly. During the electrolysis, the foreign metals (such as nickel, silver, gold, etc.) contained in raw copper form mud-like deposits at the bottom of the tubs. From these deposits, called "shlam", gold, silver and some other precious metals can be obtained.

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15. Coal, coke, and wood are used as fuel in the plant. These are obtained from a rich coal mine and a coke-producing factory in Noril'sk. The electricity for the plant is supplied by the Noril'sk TETs (Steam-heat and Electric Power Station) and comes to the plant through a transformer at the plant. The transportation of raw material and by-products within the plant area is done by winches and conveyor belts.

Labor at "Mednly Zavod" and Personalities

16. There are approximately 3,500 workers working in three shifts at the "Mednly Zavod". Nine hundred to 1000 of these are free workers; the remainder are prisoners from the 17th (Concentration?) Camp near the plant. The labor supply is plentiful since prisoners are usually available. Approximately 50% of the free workers are former prisoners from foreign countries. The other 50% are exiles or people who had recently come to Noril'sk.

17. [redacted] personalities in Noril'sk: 25X1

a. Gibalin (fnu) is the Director of the "Mednly Zavod" [redacted] 25X1

[redacted]

b. Aristov (fnu) was designated to replace Gibalin as the Director of the Administration of Metallurgical Plants. [redacted] 25X1

[redacted]

c. Chief engineer Kiselyov (fnu) is the technical director and the assistant manager of the "Mednly Zavod". [redacted] 25X1

[redacted]

d. Vera Dogusho is the cadre inspector (inspektor otdel kadri) of the "Mednly Zavod". [redacted] 25X1

[redacted]

e. Abdurakhmanov (fnu), a Tatar, is chief of the coal and metal dross section (Shlak Atval). [redacted]

[redacted] 25X1

f. Danskoy (fnu) [redacted] is the chief of the electrolysis shop.

[redacted]

[redacted]

g. Dimitri Gerasimovich Nikolayev is the chief engineer of the electrolysis shop. [redacted] 25X1

h. Mishgarodu (fnu) is the assistant-chief of the electrolysis shop and is of Russian origin.

i. Mikhail Vasilevich Varatnikov is the first shift leader (foreman) of the electrolysis shop. [redacted] 25X1

j. Mikhail Petrovich Soldatov is the second shift leader of the electrolysis shop. [redacted] 25X1

k. Skvartsov (fnu) is the third shift leader of the electrolysis shop. [redacted] 25X1

l. Vitya Sukhanovski is a brigade leader of the electrolysis shop. [redacted]

m. Fedya Lisov is a foreman in the converter section of the plant. [redacted]

n. Yurchinko (fnu) is also a foreman of the converter section. [redacted] 25X1

o. Katya (lnu) is the cashier of the plant and is of Russian origin. [redacted]

p. Gosha Artushin is a foreman in the anode section of the plant. [redacted]

[redacted] Comments: 25X1

1. This must be either a labor or a concentration camp.

2. Apparently the plant does not process dross into precious metals, and until it can do so, the dross is being sent to Moscow for processing.

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[redacted]

3. [redacted] Comment: The production was calculated weekly because the used or empty cathodes were replaced each week. 25X1

4. [redacted] Comment: Theoretically it is 0.1 : 0.2 volts. 25X1

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LEGEND of the SKETCH of the (MEDNIY ZAVOD)

COPPER FACTORY

I. Electrolysis department

2. A three- storied section - houses some bureaus.

3. A two-storied section - No information.

4. A two-storied section - laboratory

5. " " " "

6. Site of the "Pishaynik" stone which is added to coke, coal and "Konsentrat" during the process of smelting.

7. A two-storied section - No information.

8. Transformer centre.

9. Management department of the factory - three storied.

I0. Converter department.

II. Blast furnace

I2. Dross from the furnace is thrown here.

I3. Place where coal mills are situated.

I4. Anodes are prepared here.

I5. Manufactured product warehouse i.e. Depot for the copper sheets obtained as a result of electrolysis.

I6. Food articles depot

I7. Mess hall

I8. Garage

I9. Water tanks

20. Observation tower for guards. 25X1

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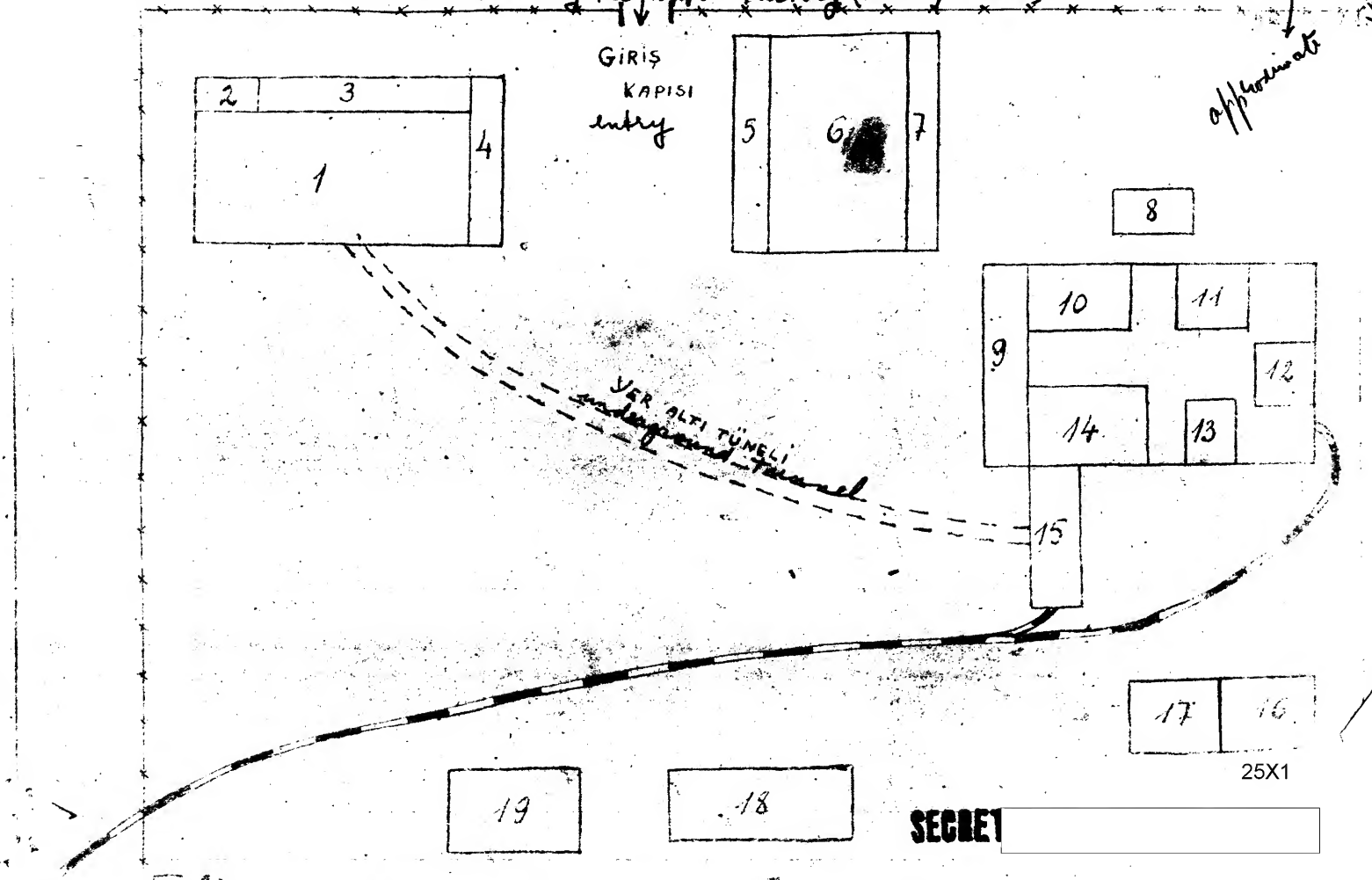
25X1

NORILSK'DE BULUNAN BAKIR FABRIKASI (MEDNIY ZAVOD)

GÖSTERIR-KROKİ

from march 12, 1954 Sketch showing the Kopper Factory (Mednіy Zavod) in NORİLSK



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Note: Wire entanglement encircles 26th Zavod and 17th lager (camp)

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Industrial Complex-NOR'ILSK USSR

A. Rough sketch of the general area around BOLSHOY PLAV TSEKH.

1. BOLSHOY PLAV TSEKH.
1a. Sheet metal tube leading from BOLSHOY PLAV TSEKH to the chimney 1b.. Tube used to transmit industrial gases from the B.P. TS.
1b. Industrial Chimney ofthe B;P.TS.
2. Kontora Stroystava. Presumably an industrial coordinating office.
3. Rudniy Dvor.
3a. Conveyor housing, leading from RUDNIY DVOR to the B.P.TS.
4. BAV or BAF.
5. Offices and storage area of BAV or BAF.
6. Railroad leading to the GIPSOVIY ZAVOD and KOKS KHIM STROY.
7. BLACK top road leading to the 25 ZAVOD.
8. Railroad leading to the 25 ZAVOD
9. MEKH PUNKT STANTSIYA ZHELEZNIKH DOROG.

B. Upper level of the BOLSHOY PLAV TSEKH.

1. Tracks for the VAGONYETKI which transport ore and coal to the VATRZHEKITS.
2. Bunkera. Used for the storage of ore.
3. Bunkera. Used for the storage of ore.
4. Bunkera. Used for the storage of coal.
5. Transportiyon. Conveyor belt system (3 conveyor belts) leading from the RUDNIY DVOR to the B.P.TS.
6. Kran. Crane which serves the KONVERTERA.
7. Crane which serves the VATRZHEKITS.
8. Crane which serves the OBZHEGOY TSEKH.

C. Ground level of the BOLSHOY PLAV TSEKH.

1.. VATRZHEKITA. Numbered one and two. Ore supplied by Rudniy Dvor and
. BAV Nikelniy Zavod are processed in the VATRZHEKITA. There are various ores processed in these VATRZHEKITA, i.e., nickel, med', kobalt. Processed metals are then passed to the KONVERTERNIYE OT'DELENIYE.
2. KONVERTERA. The products of the VATRZHEKITA are processed in the KONVERTERA and divided into four categories; fashtin, nikel, kobalt and med'.
   a. Fashtin is sent to the ELEKTROPESHNOYE OT'DELENIYE of the OBZHEGOY TSEKH.
   b. NIKEL is sent to the ELEKTROPESHNOYE OT'DELENIYE of the OBZHEGOY TSEKH.
   c. KOBALT was sent to a SHLAG OTVAL for processing and sent to the 25 ZAVOD.
   d. MED' was sent to MEDNIY ZAVOD and it was said that this product would be sent to BEZ or BES for Electrolytic processing.
3. SULFATNIY PECH. A device for processing suphate after which it is sent to the VATRZHEKITA.
4. Wide Gauge Railroad leading to the SHLAG OTVAL, continuing to the 25 ZAVOD.
5. A place called PODSTANTSIYA. An electric control station for lights and blowers of the KONVERTERA and possibly VATRZHEKITA.
6. POSHTIYUSHNIYE OT'DELENIYE ?. Products from the KONVERTERNIYE OT' DELENIYE and sulphate were poured into containers (names unknown), where the material cooled, wasdumped, broken up and sent to other locations in the plant.
7. A three-rail (wide and standard gauge combination) railroad used to

25X1

Encl. 2

haul in coal, fire clay and brick. Hauls products from OB'ZHEGOY SEKH for delivery to BEZ or BES.

8. KONTORA. Office of the Nachal'nik of the factory.
9. KONTORA. Office of the Chief Mechanic of the Factory and the Assistant to the Nachal'nik.
10. INSTRUMENTALKA. Tool room.
10a. KUZNETS.
11. Electric shop where electric motors are overhauled.
12. MEKMASTERSKOY. Machine shop where tools for the factory are made.
13. Scales which weigh materials transferred from the B.P.TS. to the OB'ZHEGOY TSEKH.
14. This section of the complex is called OB'ZHEGOY TSEKH.
15. A furnace about 2 m high, 4 m square, w/ multiple openings (no. unknown) with fuel fed into an opening on one side. Metals processed here were sent to BEZ or BES and the ELEKTROPESHNOYE OT'DELENIYE. Processing at this furnace turned metals into powder form.
16. ELEKTRO STANTSIYA and LABORATORIYA. There contents of 17 and 18 are weighed, temperature checked and electrical devices controlled.
17. A small furnace. Details unknown.
18. A furnace equal in size to the VATRZHEKITA. Details unknown.
19. ELEKTROPESHNOYE OT'DELENIYE. Contains two electric furnaces which made Nikel'niy Anod for BEZ or BES and one other product unknown to subject. Also Office and small maintenence section on second level above shop.
20. VOZDUKH KHODOVKA. Furnished air to VATRZHEKITA and KONVERTERA.
21 and 21a. Called PODGRIVATEL'. Contains two large round tanks of water.
22. Electric Repair Shop. For minor repairs.
23. Kontora (office) for OB'ZHEGOY TSEKH.

D. RUDNIY DVOR serves the needs of the BOLSHOY PLAV TSEKH AND BAV or BAF. BAV or BAF is allegedly a nickel factory. Materials recieved and distributed by the RUDNIY DVOR are; Nikel'niye ruda, medniye ruda, kobaltniye ruda, fashtin, koks, peshaynik, pesok and ugol'. The site includes a three or four story building (2) facing the road leading to 25 ZAVOD in rear of which is the RUDNIY DVOR proper.

1. TRANSPORTYON. A conveyor system which hauls materials to the BOL'SHOY PLAV TSEKH. The conveyor system consisting of three rubber covered belts, housed by a brick building leading directly to the B.P.TS. complex, from a level below the battery of BUNKERA.
2. A 3 or 4 story building housing offices, maintenence shops, and locker rooms for employees. This building is constructed of red brick. Roof is covered with tar-paper and periodically covered with tar compound.
3. Two rows of BUNKERA containing materials as described above. This area is called RUDNIY SKLAD, which is within a building, walls of which are constructed of cinder blocks. Roof is covered with tar-paper and periodically covered w/ tar compound.
4. Two cranes which service the RUDNIY SKLAD. Situated on rollers at a level about 5m below the roof.
5. TRANPORTYON. A conveyor system which hauls materials to BAV or BAF.
6. Three track wide-narrow-gauge combination railroad.
7. Same as 6.

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E. According to subject, all the industrial buildings of NOR'ILSK were constructed of Cinder Blocks. Both, the B.P.TS. and BAV of BAF were cinder block buildings, with brick used only for small constructions i.e., additions, repairs to damaged parts. Roofs were covered with steel meshed reinforced concrete slabs, whereas previously all roofs were covered with corrugated steel sheeting which proved impractical because of weather conditions.

1. The B.P.TS. had window area only on the sides of the protrusion housing the Bunkera, the construction in the center and top of the building.
2. BAV or BAF had windows covering the whole front of the plant, with some windows placed on both sides of the building. Roof construction as in E above.

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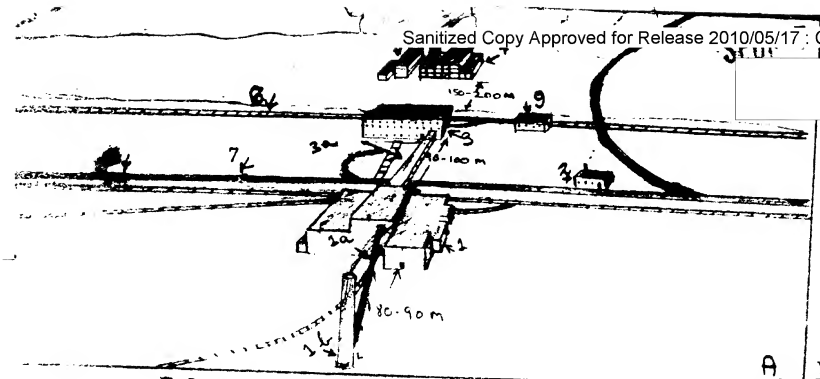
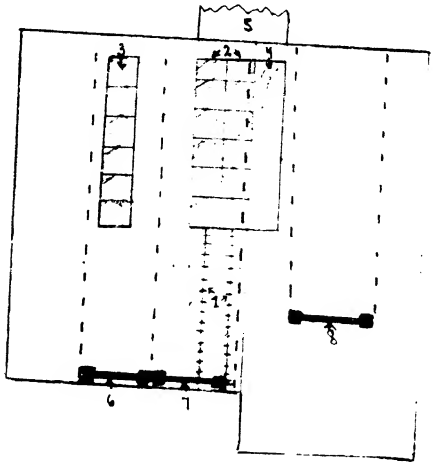
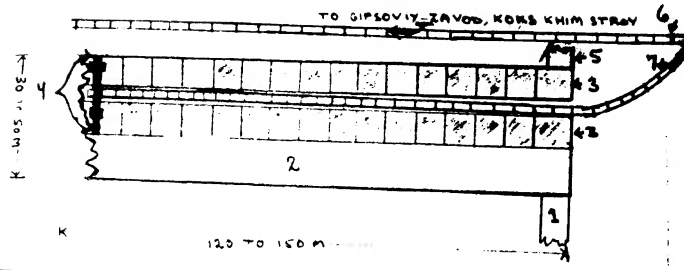


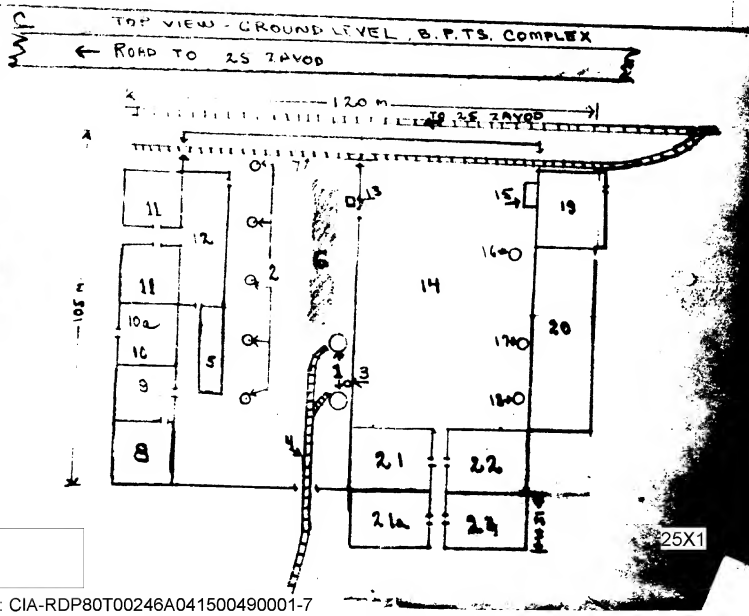
TOP VIEW UPPER LEVEL B.P.TS. COMPLEX



RUDNIY DVOR



TOP VIEW - GROUND LEVEL B.P.TS. COMPLEX



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